WHAT IS CLAIMED IS:

1. A nuclear medical diagnostic apparatus comprising:

at least one radiation detector having a plurality of semiconductor cells which are arranged in a matrix, detect radiation separately, and output signals representing an energy of the radiation separately;

a selection circuit which, in order to select, among events wherein the radiation is detected, a specific event wherein a radiation derived from radio-isotope injected to a subject is detected, in a first case wherein either one of said semiconductor cells output a signal, compares an energy of the signal with a predetermined energy window, and in a second case wherein not less than two semiconductor cells output not less than two signals substantially simultaneously, calculates a total energy of the not less than two signals and compares the total energy with the predetermined energy window;

a position calculation circuit which, in the first case, calculates an incidence position of the radiation on the basis of a position of said semiconductor cell that has output the signal and, in the second case, calculates an incidence position of the radiation on the basis of a position of either one semiconductor cell among said not less than two semiconductor cells;

a counting circuit configured to count the

specific event in association with the calculated incidence position; and

a circuit configured to generate a distribution of radio-isotope in the subject on the basis of a counting result.

2. An apparatus according to claim 1, further comprising an internal coincidence circuit configured to determine the second case on the basis of a time difference among a plurality of signals output from said radiation detector.

3. An apparatus according to claim 1, wherein in the second case, said position calculation circuit compares the energies of the not less than two signals in order to select either one from said not less than two semiconductor cells.

4. An apparatus according to claim 1, wherein in the second case, said position calculation circuit selects, from said not less than two semiconductor cells, one that outputs a signal representing a minimum energy.

5. An apparatus according to claim 1, wherein in the second case, said position calculation circuit selects either one from said not less than two semiconductor cells on the basis of the energy of the not less than two signals.

6. An apparatus according to claim 1, wherein in the second case, said position calculation circuit

selects, from said not less than two semiconductor cells, one that outputs a signal representing a minimum energy in a first area, and one that outputs a signal representing a maximum energy in a second area.

7. An apparatus according to claim 1, wherein in the second case, said position calculation circuit selects one from said not less than two semiconductor cells on the basis of the energy of the not less than two signals and the positions of said not less than two semiconductor cells.

8. An apparatus according to claim 1, further comprising a circuit configured to calculate time differences between a signal output from either one of said plurality of semiconductor cells and signals output from remaining ones of said plurality of semiconductor cells.

9. An apparatus according to claim 1, further comprising a circuit configured to calculate time differences between a signal output from either one of said plurality of semiconductor cells and signals output from remaining ones of said plurality of semiconductor cells, and determines the second case on the basis of the time differences.

10. An apparatus according to claim 1, wherein each of said semiconductor cells has a layer made of cadmium telluride or cadmium zinc telluride.

11. An apparatus according to claim 1, wherein

each of said semiconductor cells has a scintillator layer and a photoelectric conversion layer.

12. A nuclear medical diagnostic apparatus comprising:

at least one radiation detector having a plurality of semiconductor cells which are arranged in a matrix, detect radiation separately, and output signals representing an energy of the radiation separately;

a selection circuit which causes, among events wherein the radiation is detected, an event wherein not less than two semiconductor cells output not less than two signals substantially simultaneously, not to contribute to imaging, and selects an event derived from radio-isotope injected to a subject on the basis of the energy of the signal,

a position calculation circuit configured to calculate an incidence position of the radiation on the basis of positions of said semiconductor cells that output the signals;

a counting circuit configured to count the selected event in association of the calculated incidence position; and

a circuit configured to generate a distribution of radio-isotope in the subject on the basis of a counting result.

13. An apparatus according to claim 12, further comprising an internal incidence circuit configured to

determine the second case on the basis of a time difference among a plurality of signals output from said radiation detector.

14. A nuclear medical diagnostic apparatus comprising:

at least one radiation detector having a plurality of semiconductor cells which are arranged in a matrix, detect radiation separately, and output signals representing an energy of the radiation separately;

a position calculation circuit which, in a first case wherein either one of said semiconductor cells outputs a signal, calculates an incidence position of the radiation on the basis of a position of said semiconductor cell that outputs the signal and, in a second case wherein not less than two semiconductor cells output not less than two signals substantially simultaneously, calculates an incidence position of the radiation on the basis of positions of said not less than two semiconductors that output the not less than two signals substantially simultaneously;

a counting circuit configured to count an event wherein radiation derived from radio-isotope injected to a subject is detected, in association with the calculated incidence position; and

a circuit configured to generated a distribution of the radio-isotope in the subject on the basis of a counting result.

15. An apparatus according to claim 14, further comprising an internal coincidence circuit configured to determine the second case on the basis of a time difference among the plurality of signals output from said radiation detector.

16. An apparatus according to claim 14, wherein in the second case, said position calculation circuit calculates a barycentric position of the positions of said not less than two semiconductor cells.

17. An apparatus according to claim 14, wherein in the second case, said position calculation circuit calculates, when said two semiconductor cells output signals substantially simultaneously, an incidence position on the basis of one of the positions of said two semiconductor cells, and when not less than three semiconductor cells output signals substantially simultaneously, a barycentric position of the positions of remaining ones of said plurality of semiconductor cells obtained by excluding said semiconductor cell that has output the signal having a maximum energy.

18. A nuclear medical diagnostic apparatus comprising:

at least one radiation detector having a plurality of semiconductor cells which are arranged in a matrix, detect radiation separately, and output signals representing an energy of the radiation separately; and

a circuit configured to calculate time differences

between a signal output from either one of said plurality of semiconductor cells and signals output from remaining ones of said semiconductor cells.

19. An apparatus according to claim 18, further comprising a circuit configured to compare the time difference with a predetermined threshold.

20. A nuclear medical diagnostic apparatus comprising:

at least one radiation detector having a plurality of semiconductor cells which are arranged in a matrix, detect radiation separately, and output signals representing an energy of the radiation separately; and

a circuit which, when not less than two semiconductor cells output not less than two signals substantially simultaneously, calculates a total energy of the not less than two signals.

21. An apparatus according to claim 20, further comprising a circuit configured to compare the total energy with a predetermined energy window.